Environmental Sciences

AUTOTROPHIC EFFECTS ON FISH CONSUMER RATES IN THE OHIO RIVER

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In this study, we used 2000 L outdoor mesocosms to examine the effects of phytoplankton production on larval fish production. Emerald shiners (*Notropis atherinoides*) were collected from the Ohio River and placed in six High Light tanks and six Low Light tanks at a density of 10 fish per tank. Light levels were achieved by shading the tanks from incident solar radiation. We hypothesized that greater primary productivity among High Light tanks would promote higher larval fish production in comparison to low light tanks. Tanks with high light levels showed higher average chlorophyll levels in comparison with low light tanks. Larval fish growth rates were positively correlated with chlorophyll concentrations (R^2=0.57, $p<.01$). Fish in high light tanks showed significantly greater increases in weight when compared to fish in low light tanks. These data suggest that the growth rates of consumers are food limited and increases in primary productivity will improve the quantity and quality of food resources available to consumers.